

BEFORE THE  
POSTAL REGULATORY COMMISSION  
Washington, D.C. 20268-0001

Statutory Review of the System )  
For Regulating Rates and Classes ) Docket No. RM2017-3  
For Market Dominant Products )

**DECLARATION OF JOHN KWOKA AND ROBERT WILSON**

(March 1, 2018)

**I. QUALIFICATIONS AND SUMMARY**

**A. Qualifications**

My name is John Kwoka. I hold the title of Neal F. Finnegan Distinguished Professor of Economics at Northeastern University, where I have been on the faculty since 2001. Prior to that time, I have held positions on the economics faculty at George Washington University and the University of North Carolina at Chapel Hill, as well as visiting faculty positions at Northwestern University and Harvard University. I have also had visiting positions at the Brookings Institution and the John F. Kennedy School of Government at Harvard. I earned my PhD in economics from the University of Pennsylvania.

My non-academic positions include positions at the Bureau of Economics of the Federal Trade Commission, at the Economic Policy Office of the Antitrust Division of the Justice Department, and as Special Assistant to the Director of the Common Carrier Bureau of the Federal Communications Commission (FCC). I am currently on the Board of Directors of the Industrial Organization Society and have previously served as President of the Industrial

Organization Society, Vice President of the Southern Economic Association, and editor of the Review of Industrial Organization. I am or have been on the editorial boards of several journals in my field.

My field of expertise is industrial organization economics--the study of markets and competition--with a focus on regulatory and antitrust policy. I have published more than eighty articles in leading journals as well as three books in the field. My book *The Antitrust Revolution*, co-edited with L.J. White, is a widely-used compilation of case studies of major antitrust proceedings. It is published by Oxford University Press and is now going into its seventh edition. My book *Mergers, Merger Control, and Remedies: A Retrospective on U.S. Policy*, is a research monograph published by MIT Press in 2015 that studies the effects of mergers and the effectiveness of merger control and remedies.

While at the FCC, I worked specifically on developing the price cap plans first for AT&T and then for the local exchange carriers (LECs), plans that went into effect in 1989 and 1991, respectively. The major challenge of that work was to convert the conceptual framework of price caps into an operational plan that would achieve the objectives of price caps while recognizing the numerous issues specific to the telecommunications companies to which it would be applied. These issues included identifying the appropriate price index and productivity offset, determining how to reflect changes in other costs borne by the companies, balancing various considerations in their discretion over individual prices, and setting out a review mechanism and time frame. Among my publications are two that outline the various analytical and practical issues encountered in implementing price caps in telecom. In addition, I testified before the Subcommittee on the Postal Service of the House Committee on Government Reform and

Oversight concerning the Postal Reform Act of 1997.<sup>1</sup> Those hearings first explored the applicability of price caps for the Postal Service, and my testimony outlined both the standard considerations and some unique features raised by such an effort. Those hearings laid the foundation for what became the “modern system of rate regulation” embodied in the Postal Accountability and Enhancement Act of 2006.

My full curriculum vitae is attached as Exhibit 1.

My name is Robert Wilson. I am a consulting economist, and previously was a Principal at The Brattle Group. From 1997-2004 I was President of Competition Economics, Inc., which merged with The Brattle Group. Previously, I held positions at other consulting firms, and I began my career at the Economic Policy Office of the Antitrust Division of the U.S. Department of Justice. I have a Ph.D. in economics from Yale University.

My field of expertise is industrial organization economics, particularly antitrust and competition issues, regulatory matters, and intellectual property disputes. I have examined pricing and incentive issues in a large number of cases, including merger analyses, litigation over business practices, and regulatory proceedings. I have published several articles and co-authored two books and a monograph that deal with competition issues.

I was involved in an early study of potential regulatory reforms in the telecommunications industry, which included consideration of alternatives similar to price cap regulation to replace the regulatory framework that existed at the time. That study was published

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<sup>1</sup> *To Reform the Postal Laws of the United States: Hearing on H.R. 22 Before the Subcomm. on the Postal Service of the H. Comm. on Government Reform and Oversight*, 105th Cong. 33-51 (1997) (prepared statement of John Kwoka, economics professor, George Washington University) (Kwoka Testimony-“Implementing Price Caps”).

in 1980 as *The Economics of Competition in the Telecommunications Industry*, co-authored with John Meyer and others. Subsequently, I did further work in the telecommunications industry, first as an expert witness in *U.S. v. AT&T*, and in various merger proceedings over the years. Recently, I assisted a client in an FCC proceeding on price cap plans for business data services providers.

My full curriculum vitae is attached as Exhibit 2.

## **B. Summary**

At the request of the Public Representative of the Postal Rate Commission, one of us previously submitted a declaration in Docket No. RM2017-3, the Statutory Review of the System for Regulating Rates and Classes for Market Dominant Products.<sup>2</sup> That declaration endorsed the use of price caps for the Postal Service but noted certain factors that had significantly and adversely affected its operation. These included principally the continuing decline in mail volume, especially first-class mail, the lack of a mechanism for recovering large exogenous costs that the Postal Service incurs, the non-compensatory rates for certain products and classes, and certain service quality matters.

That declaration described methods by which the price cap plan could be preserved, and indeed strengthened, by addressing certain defects that were built into the original price cap design and that have progressively served to weaken the financial and operational fitness of the Postal Service. That declaration noted that mid-course corrections in price cap plans were not unusual, were appropriate responses to changing circumstances and unforeseen issues, and could

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<sup>2</sup> Declaration of John Kwoka, March 20, 2017 (Kwoka Declaration).

readily be incorporated into the existing price cap plan for the Postal System

In its two recent Orders,<sup>3</sup> the Postal Rate Commission has reviewed the condition of the Postal Service and concluded that it was satisfying short-term financial stability but not medium-term or long-term stability. To achieve the latter, the PRC proposed allowing the Postal Service certain select price relief with the stated objective of restoring the financial health and borrowing ability of the Postal Service over a 5-year period.

In this declaration, we examine aspects of the PRC's analysis of and proposed remedy for the Postal Service's financial difficulties. We agree with the need to take action, but after further analysis we have come to the following conclusions:

- (1) The problems facing the Postal Service are immediate and substantial, not limited to the medium and longer term. These problems require measures that go beyond those in the Order in both time and magnitude.
- (2) The proposed remedies contemplated in the Order do not represent a good implementation of price caps, compromise some principles of price caps, will delay much needed relief, are likely ultimately to fall short of the changes required to ensure viability and stability of the Postal Service, and are likely to invite more tinkering with the system in the future.
- (3) The measures that are in fact required to address the Postal Service's problems are relatively straightforward and can and should be implemented within the framework

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<sup>3</sup> U.S. Postal Regulatory Commission, Statutory Review of the System for Regulating Rates and Classes for Market Dominant Products, Docket No. RM2017-3, Order on the Findings and Determination of the 39 U.S.C. § 3622 Review, Order No. 4257, December 1, 2017 ("Order No. 4257") and Notice of Proposed Rulemaking for the System for Regulating Rates and Classes for Market Dominant Products, Order No. 4258, December 1, 2017 ("Order No. 4258").

of price caps. Specifically, these measures are as follows:

(A) Certain large exogenous costs should be recognized explicitly in the price cap formula, separately from the operating costs that have been the focus of the plan. In this Declaration, we focus primarily on exogenous costs due to the prefunding of retirees' future health benefits and the unfunded liability for Postal Service pension benefits under the Civil Service Retirement System (CSRS) and Federal Employee Retirement System (FERS). The Postal Service should be given the rate authority to allow a reasonable opportunity to recover both operating costs and these exogenous costs

(B) Because the Postal Service faces an increased burden of fixed costs due to the large decline in mail volumes, the price cap formula should include a term that adjusts price annually by the amount of the average cost increase resulting from declining volumes.<sup>4</sup>

(C) Rates for certain non-compensatory products and the Periodicals Class should be reset to their respective per-unit variable cost in order to eliminate the economic inefficiency and financial penalty associated with below-cost pricing.

(D) The time period until the PRC's next review of measures implemented under the price cap plan should be shortened to 3 years, due to fast moving changes in underlying conditions facing the Postal Service, the need for significant changes in regulatory design and parameters, and the possibility of new legislation affecting the Postal Service.

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<sup>4</sup> See the Declaration of Timothy J. Brennan for the Public Representative, March 20, 2017 (Brennan Declaration).

In what follows, we detail the basis for our conclusions.

## **II. PRINCIPLES OF PRICE CAPS**

As discussed in the Kwoka Declaration, improvements in regulation have involved the implementation of incentive-based price cap regulation in several industries. Price cap regulation seeks to harness the firm's natural profit-maximizing incentives to adopt best practices and lower costs, by breaking the tight connection between price and the firm's realized profit at any point in time. For example, if the price that the firm can charge for a product were completely independent of its costs or profits, then all cost savings would flow directly into its profits and the firm would have the strongest possible incentive to reduce its costs. On the other hand, if price gets adjusted too quickly relative to costs, the firm's profit incentive is greatly reduced.

To avoid shortfalls or windfalls that compromise plan objectives in the face of costs that rise or fall over time, price cap plans need to adjust the level of price to reflect changes in the economic factors that cause underlying costs to change. Ideally, price for any particular product should be set at the level of the average total cost, which is equal to the Postal Service's total cost for that product divided by the number of relevant mail pieces. The total cost combines both variable and fixed cost, and, for the Postal Service, is the sum of attributable and institutional cost.

Expected changes in costs of any product are due to changes in the prices of inputs (dollars per unit of input), the rate of productivity increase (units of output per input), and any "exogenous" cost changes (those not under the control of the firm). Chosen and incorporated

appropriately, these factors will predict future costs reasonably accurately and provide a continuously updated efficiency target for the company.

In practice, price cap plans typically use a broad price index such as GDDPI or CPI-U to capture input price changes, a productivity factor  $X$  deduced from economic studies of the firm or its industry or a similar industry, and one or more factors to capture exogenous cost changes. Exogenous costs are typically divided into a  $Y$ -factor for certain regulatory costs that are expected to be passed through dollar-for-dollar to consumer rates, and  $Z$ -factors for other costs that the firm is responsible for covering but which are outside of its control. Both  $Y$  and  $Z$  factors are exogenous to the firm—that is, not under its control—and thus are not subject to efforts at efficiencies. Therefore, they must be held separate from the efficiency-driven part of the plan. These considerations yield the common characterization of price cap plans as: “ $\Delta\text{PI} - X + Y + Z$ ” – that is, prices that change with the rate of change of some broad price index net of productivity gains but reflect exogenous cost factors (all expressed in percentage terms).

The price cap index must be applied to an initial level of prices, which is often set at the existing level of prices at the time of plan initialization. The logic of this choice is that the existing price is the level determined as appropriate by current rules or regulation, and so it represents something like good, if not necessarily best, practice. In addition, the existing price is a straightforward benchmark against which future gains can be measured: since that is the best that consumers had reason to expect under traditional regulation, any lower price is an unambiguous benefit.<sup>5</sup>

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<sup>5</sup> Further, a full-blown regulatory investigation to determine the “right” initial price may not be an attractive alternative. Hence, unless there is something obviously incorrect about the existing price, the default approach is usually to adopt that for the launch of price caps. However, if the existing price deviates from average cost for some historical or other reason, it should be reset in order to avoid future revenue anomalies and economic inefficiencies.



Most price cap plans provide for a review or reset on a four or five-year cycle--long enough to preserve incentives, but short enough to catch deviations of price from underlying costs before those deviations escalate and jeopardize the plan itself. Since the price cap formula is only a prediction of cost, divergence is inevitable, and likely to be larger when the plan operates over longer periods of time or if conditions change rapidly. Small and random divergences are likely to average out, but those that are large and persistent will result in either windfall profits to the firm that violate the regulatory objective of protecting consumers, or financial losses that jeopardize its ability to survive.

A practical consideration in implementing a price cap plan occurs because all regulated firms have numerous services and prices. Since capping each one would be burdensome and impractical, the standard practice—consistent with economic theory--is to cap a weighted average of such prices, or alternatively, a weighted average of prices within each of a small number of groups or classes of similar services. Many plans also have secondary pricing limits within the weighted average, designed to blunt any harm to consumers and competition (e.g., from large and rapid price changes or strategic pricing practices that harm competition) but without ultimately preventing the firm from moving prices toward their efficient levels.

Another practical consideration is how to maintain service quality. Price caps are intended to motivate the firm to lower costs through operating efficiencies, but the same incentives can cause the firm to reduce costs by lowering service quality. With their focus on the relationship between price and cost, price cap plans lack an inherent mechanism to preserve or enhance service quality even if desired by consumers. Complicating matters further, quality itself and consumers' preferences for quality are more difficult to measure than with respect to

price. Left unchecked, some—but not all--evidence suggests that quality erosion may well occur under price caps.

### **III. DISCUSSION OF SPECIFIC MEASURES**

#### **A. Need for Prompt Action**

As discussed in the Kwoka Declaration (pp. 15-21), the financial performance of the Postal Service under the current price cap system has been extremely poor, despite considerable efforts at cost cutting by the Postal Service. Revenues have fallen short of total costs each year since at least 2007.<sup>6</sup> Borrowing authority has been exhausted. Mandatory payments have not been made. Quality has suffered. And the forces giving rise to these effects are unrelenting. Despite these stark facts, which logically should prompt aggressive action, the PRC concluded that the current system has allowed the Postal Service to maintain short-term financial stability.<sup>7</sup>

We believe that this unsupported conclusion leads the PRC erroneously to conclude that the Postal Service's problems are primarily in the medium and longer term. As a result, we believe that the PRC's proposed changes to the price cap system are inadequate overall and will be implemented much too slowly.<sup>8</sup> Instead, we conclude that

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<sup>6</sup> Order No. 4257 at p. 168.

<sup>7</sup> Order No. 4257 at p. 165. The Public Representative also filed a motion for reconsideration of the PRC's determination that short-term financial stability has been maintained under the current system (See Docket No. RM2017-3, Motion by the Public Representative for Reconsideration, January 5, 2018).

<sup>8</sup> Indeed, it is quite possible that the Postal Service will not be able to implement higher rates that would be permitted by the PRC's proposals until early 2020. Order No. 4258, Attachment A at p. 22 states that any supplemental rate authority shall be made available to the Postal Service as of January 1 of each calendar year but must be included in the first generally applicable rate adjustment filed in any calendar year. Given the timing of this proceeding, the time required for the PRC to finalize new rules, and the time needed for the Postal Service to

more prompt action is needed, and with greater rate authority.

## **B. Supplemental Rate Authority**

As discussed above, price cap plans typically use an index formula to reflect on-going cost changes, to adjust for productivity changes (X-factor), and to allow for exogenous cost changes (typically a Y-factor for certain regulatory costs and Z-factors for other costs that are outside of the firm's control).

The PRC has proposed to allow the Postal Service 2 percentage points of supplemental rate authority per year for 5 years, in addition to CPI-U annual percentage increases.<sup>9</sup> In determining the amount of supplemental rate authority, however, the PRC used the Postal Service's FY 2017 net loss of \$2.7 billion as a reference point.<sup>10</sup> This is an unfortunate choice since it is the lowest loss sustained by the Postal Service in the last 10 years. It does not correctly reflect either its longer-term average loss or its likely future revenue shortfalls. *See* Order No. 4258 at p. 38; Order No. 4257 at p. 168, Table II-10.

Therefore, while we concur with the PRC's proposed attempts to address the medium-term and long-term financial stability of the Postal Service, we find that the problems of the

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prepare and file its next rate case, it is conceivable that rate increases permitted by the PRC's proposed supplemental rate authority will not make it into the Postal Service's first rate case in 2018. In that event, the Postal Service would have to wait until 2019 to file for the newly permitted rate increases, and until early 2020 to implement them.

<sup>9</sup> Order No. 4258, at p. 42. The PRC states that "Applying this proposed supplemental rate authority in addition to the CPI-U price cap for 5 years produces estimated revenues with a net present value equal to that of a one-time rate increase of 5.7 percent above CPI-U followed by 4 years of inflation-only increases." *Id.* See also Figure III-1 and related discussion at pp. 44-45. We note that the Postal Service cannot operate on a present value basis: its financial and operating constraints are year-to-year.

<sup>10</sup> Order No. 4258, at p. 38.

shorter term have not been properly assessed. Moreover, the ad hoc 2 percent annual price relief is mathematically unrelated to the underlying nature of the problem, particularly in light of the problem of declining demand that causes increases in average cost.

Further, we do not see that the PRC's proposal explicitly identifies or addresses the exogenous costs that the Postal Service must cover. In particular, the Kwoka Declaration (at pp. 24-25) identifies the mandatory prefunding of retirees' future health benefits as one critical factor that was not integrated into the initial price cap plan but there are, in addition, other such costs that need to be incorporated into a correctly revised plan.

In addition to the issues discussed in the Kwoka Declaration, we have considered two other categories of exogenous costs. The Postal Service is required to participate in pension and health and benefits programs for employees and retirees, including the Federal Employees Health Benefit (FEHB) program, the Civil Service Retirement System (CSRS) and the Federal Employees Retirement System (FERS), and it has no control or influence over the benefits offered by these plans.<sup>11</sup> The Postal Service was required in 2017 to begin making annual payments to amortize the unfunded CSRS liability, which resulted in an unfunded liability expense of \$1.7 billion for FY 2017 (FY2017 10-K at p. 5). This amount will be due annually until 2043. In addition, the FERS obligation was \$917 million in 2017, and approximately that amount will continue annually to 2046 (FY2017 10-K at p. 39). It appears that the unfunded CSRS and FERS liabilities should be characterized as exogenous costs.

We conclude that exogenous costs for items such as the continued prefunding of retirees' health benefits, other unfunded retirement benefit liabilities, and the average annual cost increase

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<sup>11</sup> USPS Form 10-K for the fiscal year ended September 30, 2017 ("FY2017 10-K") at p. 5.

resulting from declining Postal Service volumes should be included as Z factors in the price cap formula. Recognizing these exogenous costs explicitly, and separately from the operating costs that have been the focus of the price cap plan, in determining rate authority would allow the Postal Service a reasonable opportunity to recover both operating costs and these exogenous costs.

To allow the Postal Service the opportunity to achieve financial stability, the price cap plan should explicitly recognize these large exogenous costs—Z factors--that the Postal Service must cover out of annual revenues. To do otherwise is to burden the Postal Service indefinitely for the setting of incorrect plan parameters a decade ago. Further, the rate change authority allowed under the price cap plan should not be arbitrarily limited to a 5-year period (and review of the plan should be undertaken more frequently, as discussed below).

### **C. Costs and Quality under Performance-Based Rate Authority**

The Kwoka Declaration noted that the incentive for cost reduction under price caps can adversely affect quality insofar as quality reductions reduce costs and thereby enhance net revenues. For that reason, price cap plans often include ancillary provisions for service quality. But it is also true that service quality reductions might occur under a price cap plan as a result of unresolvable constraints on revenues under an exogenously fixed price. In particular, if a price-capped entity finds itself in need of added revenues to break even after all prudent cost sacrifices have been made, then quality reduction may be one of its few remaining recourses. In that setting, the problem is not one of inadequate plan incentives for quality, nor is it the failure of the price capped entity to take every reasonable action to ensure quality. It is simply that its mandate

to cover all costs cannot be met while maintaining quality.

We agree with the observation in the Commission's Order No. 4258 that the Postal Service has failed to establish and maintain high quality service standards, but we disagree with its explanation that quality has declined "because the current regulatory system did not effectively encourage the Postal Service to maintain service quality standards."<sup>12</sup> Rather, as we have previously shown, the Postal Service's problems can be primarily traced to the mandate to cover its costs in the face of unrelenting demand declines, the burden of exogenous cost allocation, and erroneous initial parameters. None of these represent failures of the Postal Service to perform, but rather the logical economic impossibility that the price capped entity can satisfy its mandate to cover costs under these conditions.

We think that a firm grasp of the causal nature of the problem is essential to formulating a proposed remedy. Our analysis indicates that the root problem is the lack of a financial equilibrium for the Postal Service under the current price cap plan. By the "lack of financial equilibrium," we mean that low quality due to the excess pressure to cut costs cannot be remedied by strengthening incentives to raise quality or otherwise find more costs to cut. There is convincing evidence that the Postal Service has strived to reduce costs, and it is after the ordinary opportunities to conserve on costs have been depleted that cost-saving quality reductions have been resorted to.

We therefore do not concur that quality has suffered due to inadequate incentives. Under the current circumstances of the Postal System, quality is not the choice variable that the proposal in the Order seems to suggest. It is the unfortunate outcome of a problem that is

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<sup>12</sup> Order No. 4258. at 273.

inherent in the presently constituted price cap plan. Under present circumstances, offering stronger incentives for higher quality, or even maintaining quality, will not address the underlying issues. We therefore reiterate our belief that a policy of stronger incentives attacks the symptoms, rather than the causes, of the problem. We further recommend a policy of revenue restoration to allow for quality restoration. At that point some quality standards, metrics, or incentives may be appropriate.

#### **D. Non-Compensatory Classes and Products**

Price cap regulation generally presumes that rates are set initially at an appropriate level, which is often the level at the time of plan initialization, as discussed above. The Kwoka Declaration (pp. 17-18, 22, 27) found that the initial parameters of the formula for price caps at the Postal Service appear to have captured its operating costs for most services reasonably well, with the important exceptions of rates for Periodicals and for Standard Flats. At the time of implementation of price caps, Periodicals and Standard Flats were priced at levels below their variable or attributable costs, resulting in both of these services yielding net revenue losses in the hundreds of millions of dollars each. Indeed, it is contrary both to economic efficiency and to good business practice for goods or services to be priced less than their attributable costs.

The PRC's analysis shows that the percentage of total attributable costs recovered (i.e., the "cost coverage") in FY 2016 was 70 percent for In-County Periodicals and 73.5 percent for Outside County Periodicals. The cost coverage was 79.4 percent in FY 2016 for Standard Flats (now called USPS Marketing Mail Flats).<sup>13</sup>

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<sup>13</sup> Order No. 4258, at pp. 74-75 and Table III-2. Other non-compensatory products and their cost coverage in FY 2016 were: USPS Marketing Mail Parcels (formerly called Standard Mail Parcels, 64.6%), Stamp Fulfillment

With respect to non-compensatory classes (i.e., Periodicals), the PRC proposes to provide 2 percentage points of additional rate authority for the class. The Postal Service would be required to use all available rate authority for non-compensatory classes (including all CPI, supplemental, performance-based, and banked rate authority, plus the additional 2 percentage points provided for non-compensatory classes) when seeking to raise rates for a non-compensatory class.<sup>14</sup>

With respect to non-compensatory products, such as Standard Flats, in classes for which the entire class is compensatory (i.e., revenue exceeds attributable costs for the class), the PRC proposes that the rate for any non-compensatory product be increased by a minimum of 2 percentage points above the percentage increase for the class, whenever the Postal Service files a request for the Commission to review a notice of rate adjustment applicable to that class of mail.<sup>15</sup>

The PRC's analysis shows that, even with the proposed additional rate authority for non-compensatory products within compensatory classes, it will take at least 5 years and probably much longer for products such as Standard Flats to achieve full coverage of attributable costs.<sup>16</sup> The PRC does not provide an analysis for the non-compensatory Periodicals class.

We are concerned that the PRC's proposed changes for these non-compensatory products

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Services (87.3%), Money Orders (91.1%), Collect on Delivery (41.1%), Stamped Envelopes (92.3%), Inbound Letter Post (66.4%), and Media Mail/Library Mail (75.2%).

<sup>14</sup> Order No. 4258, at pp. 84-85.

<sup>15</sup> Order No. 4258, at p. 77. This proposed rate increase does not create additional rate authority for the entire class. The PRC also proposes to prohibit the reduction of rates for non-compensatory products.

<sup>16</sup> Order No. 4258, at p. 78-80. Five years assumes attributable cost increases will be 1.0 percent annually, far below the historical average of 1.6 percent. *Id.*, Table III-4.



and classes are too limited. As discussed in the Kwoka Declaration (p. 27), prices for these non-compensatory products have already damaged the Postal Service's operations and hampered any effort at putting it on firmer financial ground. That effect will persist so long as these rates are non-compensatory. We therefore recommend that these rates should be reset to their respective per-unit variable cost as soon as possible in order to prevent further harm to the Postal Service, and also to eliminate the economic inefficiency associated with below-cost pricing.

#### **E. Adjustment for Declining Demand**

As discussed in the Kwoka Declaration (pp. 25-26), the Postal Service faces an increased burden of fixed costs due to the large and persistent decline in mail volumes, especially with respect to First-Class Mail. However, the PRC fails to recognize that price cap formulas are not designed to deal with exogenous declines in demand and quantity that cause substantial increases in average costs.

Since exogenously declining mail volumes increase average unit costs, the price cap formula should include a term that adjusts price annually by the amount of the average cost increase resulting from declining volumes. The Brennan Declaration provided a straightforward adaptation of the price cap formula that addresses this issue. We urge adoption of that proposed adaptation as part of a more comprehensive mid-course correction for this price cap plan.

#### **F. Review Period**

As discussed previously, the period of time between regulatory review is an important feature of price cap plans, to ensure that plan parameters are sound. The Kwoka Declaration (at

pp. 28-29) concluded that the ten-year interval for review under the PAEA was unusually long and contributed to the financial problems of the Postal Service, because the price cap formula was not subject to the necessary revision for a decade. That Declaration recommended that the revised price cap plan be subject to review within four years.

The PRC now plans to review the proposed regulatory changes after the proposed supplemental rate authority expires in 5 years.<sup>17</sup> We are concerned, however, that at this moment in time, a five-year period is too long, given fast moving changes in underlying conditions facing the Postal Service and the need for significant changes in regulatory design and parameters. In addition, there is the possibility of new legislation such as that in H.R. 756, which would affect the exogenous costs that the Postal Service faces.<sup>18</sup> Because these upcoming changes are likely to affect the Postal Service in major ways relatively soon, we conclude that the next review period should be shortened to 3 years. We take no position on the appropriate length of time for a second review period.

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<sup>17</sup> Order No. 4258, at p. 37.

<sup>18</sup> Our understanding is that H.R. 756 (Postal Service Reform Act of 2017, passed by the House Oversight and Government Affairs Committee, March 16, 2017) would make several important changes to existing postal law, including the Postal Service's unfunded liability for retiree health benefits, restoring on a one-time basis approximately one-half of the rate surcharge that had compensated the Postal Service for effects of the Great Recession, and potentially requiring the use of more favorable employee demographics in calculating Postal Service pension liabilities under the Civil Service Retirement System and Federal Employee Retirement System.

VERIFICATION

I, John Kwoka, declare under penalty of perjury that the foregoing is true and correct.


Executed on March 1, 2018

A handwritten signature in blue ink, appearing to read "John Kwoka". The signature is written in a cursive style with a large initial "J" and a distinct "K".

## VERIFICATION

I, Robert Wilson, declare under penalty of perjury that the foregoing is true and correct.

Executed on March 1, 2018

A handwritten signature in blue ink that reads "Robert Wilson". The signature is written in a cursive style with a small flourish at the end. The text is contained within a light blue rectangular box.

## **EXHIBIT 1**

Curriculum Vitae  
**John Kwoka**

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**Current Positions:**

Neal F. Finnegan Distinguished Professor of Economics, Northeastern University  
Board of Directors, Industrial Organization Society  
Editorial Board, Review of Industrial Organization  
Advisory Board, Journal of Industrial and Business Economics  
Board of Directors and Senior Fellow, American Antitrust Institute  
Non-Governmental Advisor, International Competition Network

**Previous Academic Positions:**

Professor of Economics, George Washington University, 1981-2001  
Columbian Professor, 2001  
Research Professor, 2001-2003  
Faculty Associate in Public Policy, George Washington University, 1983-2001  
Visiting Professor of Economics, Harvard University, 1994-95  
Visiting Associate Professor of Economics, Northwestern University, 1980-81  
Assistant Professor of Economics, University of North Carolina at Chapel Hill, 1972-75  
Instructor, Lecturer in Economics, University of Pennsylvania, 1970-72

**Previous Non-Academic Positions:**

Member, Advisory Council to the Competition Commission of Mauritius, 2012  
Guest Scholar, Amsterdam Center for Law and Economics, University of Amsterdam,  
Fall 2008  
ENCORE Fellow, University of Amsterdam, 2003-09  
Fellow, Center for Business and Government, Kennedy School, Harvard, Summer 2000  
Founder and Co-Director, GWU Research Program on Industry Economics and Policy,  
1996-2001  
Guest Scholar, Brookings Institution, 1995  
Special Assistant to the Chief, Common Carrier Bureau, Federal Communications  
Commission, 1987-88  
Economist, Economic Policy Office, Department of Justice Antitrust Division, 1985  
Economist, Bureau of Economics, Federal Trade Commission, 1975-81  
Economic Policy Fellow, Brookings Institution, 1975-76

**Previous Professional Positions:**

General Editor, Review of Industrial Organization, 2001-04  
Vice President, Southern Economic Association, 2000-02  
Senior Research Scholar, American Antitrust Institute, 2000  
Associate Editor, Journal of Industrial Economics, 1990-95, 1998-2001  
Editorial Board, Review of Industrial Organization, 1983-2001  
President, Industrial Organization Society, 1998-99  
Board of Editors, Journal of Media Economics: 1987-96  
Advisory Board, Antitrust Law and Economics Review: 1985-90

**Education:**

Ph.D. in Economics, University of Pennsylvania, 1972  
A.B. in Economics, cum laude, Brown University, 1967  
Rensselaer Polytechnic Institute, 1963 (transferred)

**Books:**

Mergers, Merger Control, and Remedies: A Retrospective Analysis of U.S. Policy, MIT Press, 2015

The Antitrust Revolution, co-edited with Lawrence J. White:

7<sup>th</sup> ed., Oxford University Press, forthcoming

6<sup>th</sup> ed., Oxford University Press, 2014

5<sup>th</sup> ed., Oxford University Press, 2009

Translated into Chinese by Ping Lin and X. H. Zang, Economic Science Press of China, Beijing (2008)

4<sup>th</sup> ed., Oxford University Press, 2004

Translated into Chinese by Ping Lin and X. H. Zang, Economic Science Press of China, Beijing (2008)

3rd ed., Oxford University Press, 1999

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“The Structural Presumption and the Safe Harbor in Merger Review: False Positives or Unwarranted Concerns?” Antitrust Law Journal, forthcoming.

“The Effects of Mergers on Innovation: Economic Framework and Empirical Evidence,” Proceedings of the ASCOLA Conference, Edward Elgar, forthcoming.

“Non-Price Effects of Mergers: Issues and Evidence,” with S. Kilpatrick, Antitrust Bulletin, forthcoming.

“Merger Remedies: An Incentives/Constraints Framework,” Antitrust Bulletin, June 2017

“From the Fringe to the Forefront: Low-Cost Carriers and Airline Price Determination,” with K. Hearle and P. Alepin, Review of Industrial Organization, March 2016.

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“Does Merger Control Work? A Retrospective on U.S. Enforcement Actions and Merger Outcomes,” Antitrust Law Journal, v. 78, n. 3, 2013.

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“Price Spikes in Energy Markets: ‘Business by Usual Methods’ or Strategic Withholding?” with Vladlena Sabodash, Review of Industrial Organization, May 2011.

“The Price Effect of Eliminating Potential Competition: Evidence from an Airline



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“Do Mergers Improve Efficiency? Evidence from Restructuring the U.S. Electric Power Sector,” with Michael Pollitt, International Journal of Industrial Organization, November 2010.

Divestiture Policy and Operating Efficiency in U.S. Electric Power Distribution,” with Michael Pollitt and Sanem Sergici, Journal of Regulatory Economics, June 2010.

Competition Policy and the Transition to a Low-Carbon, Efficient Electricity Industry,” with Diana Moss, Electricity Journal, August-September 2010.

“The U.S. Auto Industry Under Duress: Fit, or Finished?” Competition Policy International, Autumn 2009.

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“Eliminating Potential Competition,” Issues in Competition Law and Policy, Dale Collins, ed., American Bar Association, 2008.

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“Electric Power Distribution: Economies of Scale, Mergers, and Restructuring,” Applied Economics, Nov. 2005.

“The FTC and the Professions: A Quarter Century of Accomplishment and Some New Challenges,” Antitrust Law Journal, 2005.

“Networks and Natural Monopoly,” in Network Access, Regulation, and Antitrust, Diana Moss, ed., Routledge, 2005.

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“Dynamic Adjustment in the U.S. Higher Education Industry,” with Christopher Snyder, Review of Industrial Organization, May 2004.

“A Study in Merger Enforcement Transparency: The FTC’s Cruise Merger Decision and the Presumption Governing High Concentration Mergers,” with Warren Grimes, web published at [www.antitrustsource.com](http://www.antitrustsource.com), May 2003.

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“Twenty-five Years of Deregulation: Lessons for Electric Power,” Loyola University Chicago Law Journal, Summer 2002.

“Governance Alternatives and Pricing in the U.S. Electric Power Industry,” Journal of Law, Economics, & Organization, April 2002.

“Vertical Economies in Electric Power: Evidence on Integration and Its Alternatives,” International Journal of Industrial Organization, May 2002

“Non-Incumbent Competition: Mergers Involving Constraining and Prospective Competitors,” Case Western Reserve Law Review, Fall 2001.

“Automobiles: The Old Economy Meets the New,” Review of Industrial Organization, August 2001.

“The New Industrial Organization and Small Business,” with L. J. White, Small Business Economics, February 2001.

"Commitment to Competition: An Assessment of Antitrust Enforcement Budgets," IOS Presidential Address, Review of Industrial Organization, June 1999.

"Manifest Destiny? The Union Pacific-Southern Pacific Railroad Merger," in The Antitrust Revolution, with L. J. White, 4<sup>th</sup> ed., 2004; 3<sup>rd</sup> ed., 1999.

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"Transforming Power: Lessons from British Electricity Restructuring," Regulation, Summer 1997

"The Price Effects of Bidding Conspiracies: Evidence from Real Estate Auction 'Knockouts'," Antitrust Bulletin, Summer 1997.

"Altering the Product Life Cycle of Consumer Durables: The Case of Minivans," Managerial and Decision Economics, January/February 1996.

"The Sales and Competitive Effects of Styling and Advertising Practices in the U.S. Automobile Industry," Review of Economics and Statistics, November 1993.

"Implementing Price Caps in Telecommunications," Journal of Policy Analysis and Management, Fall 1993.

"Regulation and Deregulation American Style," Sosyal Bilimler Dergisi, Fall 1993

"The Effects of Divestiture, Privatization, and Competition on Productivity in U.S. and U.K. Telecommunications," Review of Industrial Organization, no. 1, 1993

"The Effects of Divestiture, Privatization, and Competition on Productivity in U.S. and U.K. Telecommunications: A Briefer Reply," in Review of Industrial Organization, 1993.

"Market Segmentation by Price/Quality Schedules: Some Evidence from Automobiles," Journal of Business, October 1992.

"The Output and Profit Effects of Horizontal Joint Ventures," Journal of Industrial Economics, September 1992.

"The American Antitrust Revolution," Consumer Policy Review, July 1992.

"Price Squeezes in Electric Power: The New Battle of Concord," Electricity Journal, June 1992.

"Productivity and Price Caps in Telecommunications," in Price Caps and Incentive Regulation in Telecommunications, M. Einhorn, ed., Kluwer, 1991.

"Price Cap Reform in Telecommunications: A Penny Saved..." Regulation, Winter 1991.

"The Effect of Market Growth and Contraction on Industry Price-Cost Margins," Eastern Economic Journal, July-September 1990.

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J. Kwoka and L.J. White, eds. Scott, Foresman, 1989; 2nd ed., HarperCollins, 1994.

"Design Criteria for Incentive Regulation," in Report of D.C. Public Service Commission on Symposium, "Competition and the Regulation of Telecommunications Services in the District of Columbia," December 1988.

"Accounting for Losses: The Great Detroit Newspaper War," Journal of Media Economics, Fall 1988.

"Cooperation vs. Rivalry: Price-Cost Margins by Line of Business," with David Ravenscraft, Economica, August 1986.

"Efficiencies, Failing Firms, and Alternatives to Merger: A Policy Synthesis," with Frederick R. Warren-Boulton, Antitrust Bulletin, Summer 1986.

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"Markets: A Magical Mystery Tour of Current Policy," Society, November/December 1984; reprinted in Thomas Swartz and Frank Bonello, Taking Sides (Duskin, 1986).

"Market Power and Market Change in the U.S. Automobile Industry," Journal of Industrial Economics, June 1984.

"Market Share Distribution and Industry Performance: A Reply," Review of Economics and Statistics, May 1984.

"Output and Allocative Efficiency Under Second-Degree Price Discrimination," Economic Inquiry, April 1984.

"Advertising and the Price and Quality of Optometric Services," American Economic Review, March 1984.

"The Limits of Market-Oriented Regulatory Techniques: The Case of Automotive Fuel Economy," Quarterly Journal of Economics, November 1983.

"Self-Regulation in Optometry: The Impact on Price and Quality," with R. Bond, J. Phelan, and I. Whitten, Law and Human Behavior, Vol. 7, Nos. 2/3, 1983.

"Monopoly, Plant, and Union Effects on Manufacturing Wages," Industrial and Labor Relations Review, January 1983.

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"Regularity and Diversity of Firm Size Distributions in U.S. Industries," Journal of Economics and Business, October 1982.

"Does the Choice of Concentration Measure Really Matter?" Journal of Industrial Economics, June 1981.

Effect of Restrictions on Advertising and Commercial Practice in the Professions: The Case of Optometry, with R. Bond, J. Phelan, and I. Whitten, FTC Staff Report, September 1980.

"Establishment Size, Wages, and Job Satisfaction: The Trade-offs," in The Economics of Firm Size, Market Structure and Social Performance, Conference Proceedings, Federal Trade Commission, July 1980.

"EIS Market Share Data: Nature, Reliability, and Uses," Antitrust Law Journal, Vol. 47, No. 3, 1979.

"The Effect of Market Share Distribution on Industry Performance," Review of Economics and Statistics, February 1979.

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Market Shares, Concentration, and Competition in Manufacturing Industries. FTC Staff Report, August 1978.

"Regional Distribution of the 'Subsidy' Under Federal Milk Market Regulation," in Farm Size and Regional Distribution of the Benefit Under Federal Milk Market Regulation. FTC Staff Report by David R. Fronk, May 1978.

"Pricing Under Federal Milk Market Regulation," Economic Inquiry, July 1977.

"Large Firm Dominance and Price-Cost Margins in Manufacturing Industries," Southern Economic Journal, July 1977.

"The Organization of Work: A Conceptual Framework," Social Science Quarterly, December 1976.

"Federal Milk Market Regulation: The Multiple Pricing System," Proceedings, Conference on Milk Prices and the Market System, Community Nutrition Institute, Washington, D.C., January 1976.

"Optimal Policy When Effects on Distribution are Unknown," with James C. Ohls, Public Finance Quarterly, April 1975.

**Book Reviews:**

Economics of Beer, edited by Johan Swinnen, Journal of Wine Economics, 2013.

Mergers and Productivity, edited by Steven Kaplan, in the Journal of Economic Literature, June 2002.

Costs and Productivity in Automobile Production: The Challenge of Japanese Efficiency by Melvyn Fuss and Leonard Waverman, in Review of Industrial Organization, June 1994.

The Economics and Regulation of United States Newspapers by Stephen Lacy and Todd Simon, in Journal of Media Economics, no. 1, 1994.

Profits and the Stability of Monopoly by M. A. Utton, in The Antitrust Bulletin, Summer 1987.

The Japanese Automobile Industry by Michael Cusumano, in Journal of Economic History, June 1987.

Industrial Organization by Kenneth Clarkson and Roger Miller, in Antitrust Law and Economics Review, 1985 (No. 3).

Power and Market: Government and Economy by Murray Rothbard, in Southern Economic Journal, October 1978.

**Policy Essays:**

"Squaring the Deal," Milken Institute Review, 4<sup>th</sup> Quarter, 2017

"Resetting Merger Policy in the New Administration," with J. Farrell, Concurrences, 2016

"Evidence-Based Policy in Antitrust: The Need for Ongoing Merger Retrospectives," with M. Jarsulic, *ProMarket*, 2017.

"One-and-a-Half Cheers for the New FTC Remedies Study," ssrn, 2017

**Monographs (not otherwise published):**

"The Direct Costs and Benefits of US Electric Utility Divestitures," with T. Triebs and M. Pollitt, EPRG Working Paper 1024, Cambridge University, Sept. 2010.

“Investment Adequacy Under Incentive Regulation,” Northeastern University Department of Economics Working Paper 09-001

“The Attack on Antitrust Policy and Consumer Welfare: A Response to Crandall and Winston,” Northeastern University Department of Economics Working Paper 03-008, June 2003

“Dynamic Adjustment in the Higher Education Industry, 1955-1997,” with Christopher Snyder, Northeastern University Department of Economics Working Paper 03-007, May 2003

“Unilateral Withholding: Market Power and California’s Electricity Crisis,” GWU Center for Economic Research Discussion Paper 01-01, May 2001

“Price Caps for Postal Service: Some Lessons and Some Limits,” GWU Center for Economic Research Discussion Paper 00-03, April 2000

“The Industrial Organization and Small Business,” with L. White, GWU Center for Economic Research Discussion Paper 00-02, March 2000

"Reform of the Electric Power Sector in Britain," GWU Center for Economic Research Discussion Paper 96-02, December 1996.

"The Origins and Purpose of Public Enterprise," GWU Center for Economic Research Discussion Paper 96-01, December 1996

"Privatization, Deregulation, and Competition: A Survey of Effects on Economic Performance," World Bank PSD Occasional Paper No. 27, September 1996.

"Policy and Productivity in the U.S. and U.K. Telecommunications Industries," GWU Department of Economics Discussion Paper D-9004, April 1990.

"Regulation American-Style: Heavy-Handed, Light-Handed, and (Sometimes) Off-Handed," March 1990.

"Unleashing Market Forces: Lessons from Deregulation of U.S. Industry," February 1990.

"Accounting for Losses: The Great Detroit Newspaper War," GWU Department of Economics Discussion Paper D-8809, February 1988.

"Antitrust Policy and Foreign Competition," GWU Department of Economics Discussion Paper D-8711, November 1984.

**Other:**

AAI Award for Best Antitrust Book of the Year, 2016

Jerry S. Cohen Award for Antitrust Scholarship, 2014

ABA Antitrust Section Economics Grant Program recipient, 2012-13

Distinguished Service Award, Industrial Organization Society, 2012

Principle organizer and Chair of Local Organizing Committee, International Industrial Organization Conferences, Northeastern University, 2003, 2006, 2009, 2011, 2013, 2015, 2017

Award for Meritorious Service, Federal Trade Commission, 1980

Appearances before congressional and state legislative bodies.

Pro bono work on antitrust and regulatory matters.

**Membership in:**

American Bar Association Antitrust Section

American Economic Association

European Association for Research in Industrial Economics

Industrial Organization Society

International Competition Network

Southern Economic Association

February 2018



## **EXHIBIT 2**

Curriculum Vitae  
**Robert W. Wilson**

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Weston, MA 02493

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Email: [bob.wilson@affiliate.brattle.com](mailto:bob.wilson@affiliate.brattle.com)

**Current Positions:**

Consulting Economist  
Principal Emeritus, The Brattle Group

**Previous Positions:**

Principal, The Brattle Group, 2004-2015  
President and co-founder, Competition Economics, Inc., 1997 – 2004  
Senior Vice President, Econsult Corporation, 1995 – 1996  
Principal (co-founder), Microeconomic Consulting & Research Associates, Inc., 1991-95  
Vice President, ICF Consulting Associates, Inc., 1989 – 1991  
Consulting Economist (Sole Proprietor), 1984 – 1988  
Visiting Research Associate, Yale University, 1982 – 1983  
President, Economic Research Group, Inc., 1980 – 1983  
Senior Research Associate, Charles River Associates, 1977 – 1980  
Economic Policy Office, Antitrust Division, U.S. Department of Justice, 1975-1977

**Education:**

Ph.D., Economics, Yale University, 1975  
M.A., Economics, Yale University, 1972  
S.B., Physics, Massachusetts Institute of Technology, 1971

**Experience:**

Dr. Robert Wilson has more than 30 years of experience conducting analyses for antitrust, regulatory, and other competition-related matters, including intellectual property and economic damages. He has served as an expert witness in antitrust cases in federal court, including *U.S. v. AT&T*, and in telecommunications regulatory proceedings before state commissions. He began his career at the Antitrust Division of the U.S. Department of Justice, and in his consulting practice he has been involved in numerous litigation and merger proceedings.

Dr. Wilson's Ph.D. dissertation examined the economics of licensing technology, and he has published academic articles on that subject and on entry by foreign firms and exclusionary practices in technology-based industries. He is also the co-author of three books pertaining to the telecommunications, semiconductor, and electronics industries. His industry experience in consulting matters covers a wide area, including aerospace, electronics, pharmaceuticals, telecommunications, consumer goods, chemicals, metals, movies, and oil pipelines.

### ***Competitive Analysis and Regulation***

- Analyses for an FCC proceeding on price cap plans for business data services providers.
- Examination of the competitive effects of contract provisions in the credit card industry.
- Assessment of competitive issues regarding vertical restrictions and activities by distributors that were ancillary to the sale of a manufacturer's products.
- Analysis of pricing issues in an arbitration proceeding between a regional sports network and a cable television system operator.
- Analyses of market dynamics and entry in a monopolization case in the pay telephone industry.
- Preparation of reports for court proceedings involving monopolization, predation, and discriminatory pricing issues in the airline industry.
- Analyses of the effects in terms of market share and prices of exclusionary contracts in retailing of cigarettes.
- Analysis of pricing, entry, and competition in jet engine component repair markets in *Chromalloy v. United Technologies*.
- Examination of pharmaceutical industry pricing practices in the Brand Name Prescription Drug Antitrust Litigation.
- Assessment of the need to impute access charges into price floors for toll calls provided by local telephone companies, for a state regulatory proceeding.
- Microprocessor market definition and analysis of exclusionary practices in *Cyrix v. Intel*.
- Analysis of market structure and regulatory pricing alternatives for a crude oil pipeline.
- Studies for regulatory proceedings and potential business ventures in the airline computer reservations systems industry.
- A study of the prospects over the next decade for approximately 30 lines of business of a large aerospace and defense electronics company.
- A study of the electronic security industry for a client considering an acquisition.
- Presentation of expert witness testimony concerning telecommunications access charges (Maryland) and intrastate common carrier certification (Tennessee).
- Presentation of expert witness testimony on competitive effects of movie clearances in *Quad Cinema v. 20th Century Fox, et.al.*
- Presentation of expert witness testimony on telecommunications equipment market definition and analysis of market power issues in *U.S. v. AT&T*.
- A study of the international competitive status of the U.S. electronics industry.
- An examination of international competitiveness in the television receiver industry.
- A study of the structure and regulation of the telecommunications services industry, with proposed reforms including a form of price cap regulation.
- A study of innovation and competition in the semiconductor industry.
- Analysis of market structure and price behavior in the breakfast cereals industry.
- Analyses of regulation and behavior in the petroleum pipeline and refining industries.

### ***Damages***

- Damages analysis for an arbitration regarding allegations of theft of trade secrets and breach of contract in a consumer products distribution business.
- Estimation of but-for prices and possible overcharges on food preservatives in an international conspiracy to fix prices in the U.S.
- Estimation of antitrust damages in litigation between *Cyril and Intel*.
- Analysis of freight transportation damages arising from conspiracy to prevent entry of a new materials handling technology.
- Estimation of damages in a contract dispute between a firm selling medical laser equipment and its manufacturing subcontractor.
- Analysis of the effect of warnings regarding adverse reactions on physician recommendations for various drugs, for a product liability case.
- Analysis of antitrust and damages issues in *Laurel Sand & Gravel v. CSX*.
- Construction and analysis of a large invoice-based data base for a price-fixing damages case in a wire products industry.
- Estimation of lost sales in a false advertising suit involving an over-the-counter drug.
- Estimation of historical market size and shares for a drug liability case.

### ***Intellectual Property***

- Analysis of errors in forecast of profits from a new over the counter drug involved in a financial transaction challenged by the IRS.
- Damages and reasonable royalty associated with the misappropriation of a trade secret, for a firm in the direct sales industry.
- Estimation of lost sales in patent infringement litigation between *Cyril and Intel*.
- Calculation of lost royalties in patent licensing litigation between pharmaceutical companies.
- Analysis of the harm to prices, revenue, and R&D due to infringement of the patents of a U.S. biotechnology firm, in a proceeding before the International Trade Commission.
- Estimation of market shares, capacity and downstream product content for a dynamic random access memory patent infringement proceeding before the ITC.
- Critique of damage claims associated with an alleged trade secrets violation in the television satellite receiver industry and assistance with counterclaim lost sales estimates.

### ***Mergers and Acquisitions***

- Analyses of competitive issues in mergers in the steel and aluminum industries.
- Assessments of access to business customers, potential price increases, exclusionary behavior, and efficiencies in mergers of major regional telephone companies.

- Analysis of potential competitive effects and efficiencies for on an acquisition of aniline plants and an electronics chemicals business.
- Analysis of market data in a merger between manufacturers of aerospace fasteners.
- Evaluation of benefits to passengers of the airline alliance between Northwest and Continental.
- Analysis of product markets, efficiencies, and vertical issues in acquisitions of jet engine repair firms by an engine manufacturer with its own repair facilities.
- Analysis of geographic markets, the effect of concentration on pricing, and plant divestiture options for an acquisition in the gypsum wallboard industry.
- Evaluation of vertical and horizontal competition issues for railroad mergers.
- Assessment of competitive issues and efficiency arguments relating to Northeast Utilities' acquisition of Public Service of New Hampshire.
- Examination of telemetry and defense simulation markets for Loral's acquisition of Fairchild's defense electronics business.
- Assessment of competitive issues for sales of airport slots and for potential acquisitions in the airline industry.
- Analysis of market definition, scale, and investment issues for several joint ventures and potential acquisitions in the aerospace and defense electronics industries, including jet engines, solid fuel rockets, airborne radar, and weapons control systems.
- Assessment of import competition and scale economies for Alcatel's purchase of Ericsson's fiber optics and telecommunications cable business.
- Analysis of import competition, transfer pricing issues, and scale economies in servicing equipment and in R&D for GE's acquisition of CGR's x-ray and medical imaging business.
- Examination of television markets in Turner Broadcasting's attempted acquisition of CBS.
- Evaluation of competitive issues relating to the merger between the gas and electric operations of Public Service of New Mexico.
- Analysis of scale and investment issues for a joint venture among jet engine manufacturers.
- Examination of geographic and product markets for a merger in the plastics industry.

#### **Honors and Awards:**

- Special Achievement Award, U.S. Department of Justice, 1977, for contributions to the *Report of the Attorney General Pursuant to Section 7 of the Deepwater Port Act of 1974*
- Outstanding Performance Rating, U.S. Department of Justice, 1977

## **Publications:**

"Riding the Wave: Exclusionary Practices in Markets for Microprocessors Used in IBM-Compatible Personal Computers," with Frederick R. Warren-Boulton, *International Journal of the Economics of Business*, V. 2, N. 2, July 1995.

Editor, *Technology, Antitrust, and Structural Change: Essays in Honor of Merton J. Peck*, published by the *International Journal of the Economics of Business*, July 1995.

*The Competitive Status of the U.S. Electronics Industry*, with Annette M. LaMond and the Electronics Panel of the National Academy of Engineering (Washington, D.C.: National Academy Press, 1984).

"Innovation, Imitation, and Comparative Advantage: The Performance of Japanese Color Television Set Producers in the U.S. Market," with Merton J. Peck, in Herbert Giersch, ed., *Emerging Technologies: Consequences for Economic Growth, Structural Change, and Employment* (Tubingen, W. Germany: J.C.B. Mohr, 1982).

*Innovation, Competition, and Government Policy in the Semiconductor Industry*, with P. Ashton and T. Egan (Lexington, MA: D.C. Heath and Company), 1980.

*The Economics of Competition in the Telecommunications Industry*, with John R. Meyer, et.al. (Cambridge, MA: OG&H Publishing, 1980).

"The Effect of Technological Environment and Product Rivalry on R&D Effort and Licensing of Inventions," *The Review of Economics and Statistics*, May 1977.

"International Licensing of Technology," *Research Policy*, No. 5, 1976.

*The Sale of Technology through Licensing*, prepared for the National Science Foundation, R&D Assessment Program, May 1975.

## **Government Reports**

*Report on the Robinson-Patman Act*, contributor, Washington, D.C.: U.S. Department of Justice, 1977.

*Federal Energy Administration Regulation: The Ford Administration Papers*, with Paul MacAvoy, ed., et al., Washington, D.C.: American Enterprise Institute, 1977.

*Statement of Views and Arguments by the U.S. Department of Justice before the ICC, Ex Parte No. 308, Valuation of Common Carrier Pipelines*, contributor, May 1977.

February 2018